A NEW SPECIES OF *CISSUS* (VITACEAE) FOR CENTRAL AND SOUTH AMERICA

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ABSTRACT

Cissus pseudosicyoides is described as new. The species ranges from Costa Rica to Colombia. Though it has been confused in the herbarium with *C. sicyoides* L., it is probably more closely related to *C. biformifolia* Standley with which it shares dimorphic leaves and appressed T-shaped trichomes. It is most easily distinguished from *C. sicyoides* by having minute puberulence on most parts with occasional T-shaped trichomes and by having pubescent pedicels. It is distinguished from *C. biformifolia* by being densely puberulent and by having smaller greenish flower buds and smaller fruits.

Two unifoliate species of *Cissus*, *C. sicyoides* L. and *C. biformifolia* Standley, were reported in the *Flora of Panama* (Elias, 1968). In the course of my work on the Barro Colorado Island (Panama) flora, another species has been discovered.

Cissus pseudosicyoides, sp. nov.

Herba scandens cirrhosa; rami parvi et nervi foliorum trichomatibus brevibus inconspicuis, approximatisque necnon trichomatibus T-formibus, sparsis, adpressisque. Folia alterna, sicco nigrescentes; limbo foliorum majorum ovato-cordato, 9–15 cm longo, 9–12 cm lato, nervis lateralibus utroque latere 3–6; petiolis foliorum majorum 7–11 cm longis; limbo foliorum parviorum anguste ovatis, basi truncato aut obtuso aut acutato, 3–10 cm longo, 2–8 cm lato. Inflorescentia 1–4 cm longa; pedunculo florenti 2–10 mm longo, trichomatibus T-formibus densis adpressis; calyx expansus, ± crateriformis, 4-lobatus remote, alabastro latiorus; alabastrum ovoideum, 1.5–2 cm longum; petalum album aut cremeum (ruber aliquando). Fructus ± globosus, ad 6 mm diametro, viridis. Flores per initium tempus sicci.

Tendrilled herbaceous *vine*, probably ultimately arising from a woody stem; at least smaller stems, petioles, and veins of leaf blades (especially below) closely and inconspicuously puberulent; the same parts but also the axes of the inflorescence, pedicels, and leaf surfaces often sparsely pubescent with flattened, ± appressed T-shaped trichomes; stems of juvenile parts often white-speckled; *leaves* alternate, thin, usually drying dark, the larger ones borne below the inflorescence, ovate-cordate, as broad or nearly as broad as long, 9–15 cm long and 9–12 cm wide, with 3–6 pairs of lateral veins above sinus, with a single strong trunk vein extending into each basal lobe, the veins extending into apiculate teeth along the margin of the blade, the sinus about as deep as broad; *petioles* mostly 7–11 cm long; leaves higher on the stem and opposite the inflorescences usually narrowly ovate, smaller and with the base truncate to obtuse or acute at base (rarely cordate at base), mostly 3–10 cm long and 2–8 cm wide with petioles mostly 2–8 cm long, otherwise as the larger leaves. *Inflorescences* terminal or opposite upper leaves, small, congested, branched, umbelliform cymes 1–4 cm long, about as broad as long; peduncles mostly 2–10 mm long at anthesis (somewhat longer in fruit), densely appressed-pubescent with T-shaped trichomes, densely bracteate at apex, the bracts minute with margins glabrous or very in-

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conspicuously ciliate; pedicels terete, 1.5–3.5 mm long, sparsely pubescent, the trichomes as on peduncles but usually smaller; *calyx* spreading, ± bowl-shaped, inconspicuously 4-lobed, narrower than the buds, nearly glabrous; *buds* ovoid, 1.5–2 mm long, drying with ridges along the margins of the petals; *corolla* of 4 free, broadly oblong petals, these obtuse and cucullate at apex inside, usually white or cream (rarely red); *stamens* opposite petals; filaments to ca. 1 mm long, equalling or longer than anthers; anthers nearly as broad as long, dehiscing laterally; *stigma* simple, to ca. 1.5 mm long. *Fruits* ± globose, to 6 mm in diameter, apparently green at maturity; pericarp and mesocarp thin; *seed* 1, round, only slightly smaller than the dimensions of the fruit.

HOLOTYPE: Panama. Canal Zone: Barro Colorado Island, "Clearing at laboratory; vine; fruits green; flowers greenish." 9 January 1969. *Croat 7017* (MO).

Flowers at the beginning of the dry season in December and January on Barro Colorado Island (rarely elsewhere as late as March) or in the rainy season (late July–October). Individual plants may flower for one month or more. The fruits develop promptly, usually are present with flowers, and are usually gone by March. They are probably dispersed by small- to mid-sized birds. It is not known whether the fruits become brightly colored or not. Observations on Barro Colorado Island indicate that the fruits are probably removed before turning color.

Cissus pseudosicyoides ranges from Guanacaste Province of Costa Rica to northern Colombia. It is widespread in lowland areas of Panama, principally from the Pacific slope in drier areas of tropical moist forest but is also known from premontane wet forest at Chiman and premontane dry forest at Juan Diaz in Panama Province.

COLOMBIA. MAGDALENA: Santa Marta, *Herbert H. Smith 1625* (MO, US, F). VAUPES: Río Guayabero, 240 m altitude, *Cuatrecasas 7576* (MO).

COSTA RICA. PUNTARENAS: Palmar Norte de Osa, *Allen 5450* (F, US). GUANACASTE: Vicinity of Tilaran, *Standley & Valerio 44935* (US); El Arenal, *Standley & Valerio 45062* (US). SAN JOSÉ: Basin of El General, altitude 675–900 m, *Skutch 4840* (F).

PANAMA. CANAL ZONE: Barro Colorado Island, North edge of laboratory clearing, *Croat 4274, 7017, 7396, 16550* (all MO); shore each side of Gross Point, *Foster 2048* (DUKE, MO); at dock, *Shattuck 588* (F, MO, US); shore south of lab, *Wetmore & Abbe 38* (F, MO), *154* (F). Transisthmian highway about 19 miles from Colón, *Burch et al. 1001* (DUKE, F, GH, K, MO, NY, UC, US). DARIÉN: Vicinity of Santa Fé, Río Sabana, *Duke 4138* (GH, MO); Río Balsa between Manene and Tusijjuanda, *Duke 13575* (MO); Tucuti, *Terry & Terry 1400* (F, GH, MO). PANAMÁ: Boyd-Roosevelt Highway 1 mile N of Chagres River, *Blum & Tyson 1985* (MO); Chiman, *Lewis et al. 3336* (MO); San José Island, *Johnston 875* (GH, MO); Juan Diaz, *Standley 30553* (US); vicinity of Pacora, *Allen 1007* (MO, US). VERAGUAS: Puerto Mutis, *Tyson 6023* (MO, SCZ). LOS SANTOS: Tonosí, *Tyson et al. 2996* (MO).

Cissus pseudosicyoides Croat differs from the other unifoliate species of *Cissus*, *C. biformifolia* and *C. sicyoides*, in a number of ways. The differences among the three are outlined in Table 1.

Cissus pseudosicyoides bears superficial resemblance to some forms of *C. sicyoides*, principally because of its unifoliate leaves and small green flowers. *Cissus sicyoides*, a wide ranging species known from the southern United States, the West Indies, Mexico, Central America, and much of south America, is extremely variable in size and shape of leaves and degree of pubescence. The pubescence of the latter is uniformly villous. Generally leaves are ovate-oblong

TABLE 1. Comparison of unifolilate species of *Cissus* in Panama.

Cissus sicyoides L.	*Cissus pseduosicyoides* Croat	*Cissus biformifolia* Standley
Pubescence of smaller stems, petioles, and veins of lower leaf surface altogether lacking or of villous trichomes, these often crisped.	Pubescence of smaller stems, petioles, and veins of lower leaf surface of densely puberulent trichomes interspersed with fewer appressed T-shaped trichomes.	Pubescence of smaller stems, petioes, and veins of lower leaf surface altogether lacking or of whitish appressed T-shaped trichomes (rarely with a few sparse puberulent trichomes).
Leaves monomorphic; larger leaves at most rounded or truncate at base.	Leaves dimorphic; larger ones cordate at base.	Leaves dimorphic; larger ones cordate at base.
Midrib of blade markedly flattened, glabrous or villous.	Midrib of blade not at all flattened, minutely and densely puberulent.	Midrib of blade not at all flattened, usually glabrous.
Pedcels glabrous (Mexican collections sometimes pubescent but then with longer trichomes, never short or appressed).	Pedicels densely pubescent with both puberulent and dark T-shaped trichomes.	Pedicels with whitish T-shaped trichomes.
Calyx spreading, often prominently lobed, usually broader than the bud, much shorter than the corolla; buds mostly 1–1.5 mm long (dry), glabrous.	Calyx rather closely clasping base of bud, narrower than the bud, much shorter than the corolla; buds mostly 1.5–2 mm long (dry), glabrous.	Calyx spreading, often prominently lobed, broader than the bud and often enveloping to half of the base of the corolla; buds mostly 3–4 mm long (dry), often with sparse, whitish, T-shaped trichomes.
Fruits to 6 mm wide.	Fruits to 6 mm wide.	Fruits 8–10 mm wide.
Flowering not seasonal or at least not restricted principally to early dry season; usually flowering 2 or more times per year; plants with flowering and fruiting inflorescences on different parts of plant.	Flowering very seasonally, usually early dry season; plants ultimately bearing inflorescences in a succession of stages from bud through fruit.	Flowering mostly seasonally, most plants flowering in early dry season; plants ultimately bearing inflorescences in a succession of stages from bud through fruit.

and conspicuously pubescent but range to subrotund and nearly glaborus along seashores. Perhaps the easiest way to distinguish *C. sicyoides* from the other unifoliate species in Panama is by its glabrous pedicel. Both *C. pseudosicyoides* and *C. biformifolia* have varying amounts of pubescence on the pedicels. The trichomes are usually appressed and T-shaped.

Elias (1968) in the *Flora of Panama* treament of the Vitaceae included all known Panamanian specimens of *C. pseudosicyoides* with *C. sicyoides*. Despite its superficial resemblance to *C. sicyoides*, the new species is more closely related to *C. biformifolia* Standley. *C. biformifolia*, which ranges from Mexico to Venezuela, occurs only along the Caribbean coast of Panama in both tropical moist and tropical wet forest. It is distinguished by having large, red flowers (3–4 mm long in bud) and fruits 8–10 mm in diameter. Features shared in common between *C. biformifolia* and *C. pseudosicyoides* include dimorphic leaves, pubescence type and phenological behavior.

Although mature leaves of *C. biformifolia* are often nearly glabrous, the younger parts are usually conspicuously pubescent with whitish, appressed T-shaped trichomes. In addition, some parts, especially the veins of the lower leaf surface, are sometimes sparsely (rarely densely) puberulent. The larger stem leaves of both *C. biformifolia* and *C. pseudosicyoides* are ovate-cordate while the smaller leaves are acute to at most truncate at the base.

Cissus biformifolia and *C. pseudosicyoides* share similar phenological flowering and fruiting patterns, both flowering principally in the early dry season with a single prolonged flowering such that a single stem may bear all successive stages of development from flower buds at the apex to mature fruits farther down on the stem. In contrast, flowering is not seasonal in *C. sicyoides*. These plants flower two or more times per year for short intervals. A long succession of inflorescences are usually not produced on the same stem but when they are, fully mature fruits are not found on the same plant at time of flowering. Mature fruits may be found on the same plant at time of flowering, but they are usually quite removed from the flowering inflorescence and the result of an earlier flowering.

Literature Cited

Elias, T. S. 1968. Vitaceae. *In* "Flora of Panama, Part VI." Ann. Missouri Bot. Gard. 55: 81–92.

The John S. Lehmann Building

In mid-1972 the herbarium and library of the Missouri Botanical Garden were moved to new quarters in the John S. Lehmann Building. The building is on two levels, with the entire herbarium storage facilities and offices occupying the lower level (20,850 square feet) and the library, herbarium workroom, and offices the upper (21,320 square feet). The building consists of cast-in-place concrete superstructure with double-thermopane, reflective glass walls.

The herbarium, about 2.5 million specimens, is stored in six compactor units. Such compactors have been used on smaller scales in several herbaria, *e.g.* Geneva, Perth, Utrecht, for some time. This storage system needs only half the amount of floor space occupied by standard herbarium cases of equal storage capacity.

From 1859 until 1891 the herbarium and library were housed in the Museum Building. This still stands and was modeled on plans of a building designed, but never built, for Kew. In 1891 the collections were moved to the Town House of Henry Shaw (who founded the Garden in 1859), which had been moved from downtown St. Louis to the Garden and rebuilt—brick-by-brick. A wing was added to the Town House in 1908, and the herbarium-library was stored there until the 1972 move.

The *Annual Report of the Missouri Botanical Garden* for 1909 stated that the Town House addition "promises to afford safe and convenient housing for the library and herbarium for a number of years." It did. The Lehmann Building has now assumed this role, on a much more convenient and modern scale.—*Editor.*